DEPARTMENT OF TRANSPORTATION
ESC/OE MS #43
1727 30TH Street, 2ND Floor
Sacramento, CA 95816

February 7, 2001

09-Mno-395-82.6/85.0
09-2788U4
ACNH-P395(193)E

Addendum No. 1

Dear Contractor:

This addendum is being issued to the contract for construction on State highway in MONO COUNTY IN AND NEAR LEE VINING FROM LEE VINING AVENUE TO 0.5 km SOUTH OF PICNIC GROUNDS ROAD.

Submit bids for this work with the understanding and full consideration of this addendum. The revisions declared in this addendum are an essential part of the contract.

Bids for this work will be opened on February 14, 2001.

This addendum is being issued to revise the Notice to Contractors and Special Provisions.

In the Special Provisions, Section 10-1.19.5, "LIME TREATED AGGREGATES," is added as attached.

In the Special Provisions, Section 10-1.20, "ASPHALT CONCRETE," the following paragraph is added after the fourth paragraph:

"The aggregate for asphalt concrete shall be treated with lime in accordance with the requirements under "Lime Treated Aggregates," in these Special Provisions."

To Proposal and Contract book holders:

Indicate receipt of this addendum by filling in the number of this addendum in the space provided on the signature page of the proposal.

Submit bids in the Proposal and Contract book you now possess. Holders who have already mailed their book will be contacted to arrange for the return of their book.

Inform subcontractors and suppliers as necessary.

This office is sending this addendum by confirmed facsimile to all book holders to ensure that each receives it.

If you are not a Proposal and Contract book holder, but request a book to bid on this project, you must comply with the requirements of this letter before submitting your bid.

Sincerely,

ORIGINAL SIGNED BY

REBECCA D. HARNAGEL, Chief
Office of Plans, Specifications & Estimates
Division of Office Engineer

Attachment

10-1.19.5 LIME TREATED AGGREGATES

This work shall consist of furnishing and treating aggregates with lime in conformance with the requirements of these special provisions.

Prior to being incorporated into asphalt concrete or rubberized asphalt concrete, aggregate shall be treated with a slurry of lime and water conforming to the requirements of these special provisions.

Lime shall conform to the provisions of Section 24-1.02, "Materials", of the Standard Specifications, and shall be high-calcium hydrated lime. Water for mixing with aggregate and lime shall be free from oil and other impurities and shall contain not more than 650 parts per million of chlorides as Cl, nor more than 1300 parts per million of sulfates as SO_4.

Lime shall be added to the aggregate in the following proportions:

	Aggregate Stockpiles (Nominal Sizes)	Percent Hydrated Lime (by dry weight of aggregate)
Coarse	19-mm x 4.75-mm	0.5 to 1.0
Fine	4.75-mm x 75-µm	1.5 to 2.0

The exact proportions shall be determined by the Contractor and submitted to the Engineer as part of the proposed mix design submitted in conformance with the requirements of Section 39-3.01, "Contractor Mix Design Proposal," of Section 11-1, "Asphalt Concrete," elsewhere in these special provisions.

Lime shall be added to the aggregate as a slurry. Aggregate sizes, as determined by the requirements of Section 39-7.01, "Storage," in Section 11-1, "Asphalt Concrete," elsewhere in these special provisions, shall be lime treated and cured separately. The target value of the total percentage of dry lime used for the combined aggregates shall be between 1.2 percent and 1.5 percent (kilograms of dry lime per 100 kilograms of dry aggregate). The exact amount shall be determined by the Contractor and approved by the Engineer. Regardless of the water content of the water and lime slurry, or that of the untreated aggregate, the lime ratio (kilograms of dry lime per 100 kilograms of dry aggregate) for the combined aggregates shall not vary by more than 0.3 kilograms of lime above or below the amount determined by the Contractor, and approved by the Engineer.

At the time of mixing the lime slurry with the aggregate, the moisture content of the aggregate shall be at least one percent of the dry mass of the aggregate. Moisture content of the aggregate shall be of sufficient quantity so as to assure complete coating of the aggregate with lime slurry. Moisture content will be verified by California Test 226 or 370. At the time of combining the lime slurry and aggregate, all aggregate shall have been dried or drained sufficiently to result in a stable moisture content such that no visible separation of water from the aggregate will take place.

Dry hydrated lime shall be combined with water to form a slurry at a ratio of one part hydrated lime to 3 parts water, proportioned by mass or by volume as specified herein. The proportioning of lime and water shall be of either a continuous or a batch type operation in conformance with the following:

When a continuous proportioning operation for the production of lime slurry is used the proportioning device shall be capable of determining the exact ratio of water to lime at all production rates and the following methods shall be used:

Lime Proportioning - Dry lime shall be weighed using a belt scale. Belt scale accuracy shall be such that, when operating between 30 percent and 100 percent of production capacity, the average difference between the indicated mass of material delivered and the actual mass delivered will not exceed 0.5-percent of the actual mass for 3 individual runs. For any of the 3 individual runs, the indicated mass of material delivered shall not vary from the actual mass delivered by more than one percent of the actual mass. Test run duration shall be for at least 0.5-tonne of dry lime. Test run material shall be hydrated lime and shall be weighed on a platform scale located at the slurry proportioning plant. The platform scale shall have a maximum capacity not exceeding 2.5 tonnes. The platform scale shall be error tested within 24 hours of the calibration of the dry lime proportioning device.

Water - Water to be used in the lime slurry shall be measured with a meter. Meter accuracy shall be such that, when operating between 50 percent and 100 percent of production capacity, the average difference between the indicated mass of material delivered and the actual mass delivered shall not exceed one percent of the actual mass for 3 individual runs. Test run duration shall be for at least 3800 liters.

Meters and scales used for the continuous proportioning of dry lime and water shall be equipped with rate-of-flow indicators to show the rates of delivery of dry lime and water and resettable totalizers so that the total amounts of dry lime and water introduced into lime slurry storage can be determined. Individual feeds for water and dry lime shall be equipped with no-flow devices which shall stop all lime slurry production when either of the individual ingredients is not being delivered to the slurry storage tank.

When a batch type proportioning operation for the production of lime slurry is used the following methods shall be used:

Lime Proportioning shall be by mass. The weighing of the dry lime shall be performed at the slurry production site. The scale shall be appropriate for the amount of the lime draft used. When the proportioning operation uses a dry lime draft of less than 10 tonnes an automatic batch controller shall be utilized. Any automatic batch controller used shall meet the requirements of Section 39-7.03A(2), "Automatic Controls," in Section 11-1, "Asphalt Concrete," elsewhere in these special provisions.

Water proportioning shall be by volume. Meter accuracy shall be such that, when operating between 50 percent and 100 percent of production capacity, the average difference between the indicated mass of material delivered and the actual mass delivered shall not exceed one percent of the actual mass for 3 individual runs. Test run duration shall be for at least 3800 liters. The water meter shall be equipped with a resettable totalizer. When an automatic controller is used to batch the dry lime it shall also control the proportioning of the water. When an automatic controller is used to proportion the water the indicated draft of the water shall be within one percent of its total draft mass.

All weighing and measuring devices used for the proportioning of ingredients, except continuous weigh belts, shall have been Type Approved by the Division of Measurement Standards, Department of Food and Agriculture, State of California. All weighing and measuring devices used in the proportioning of lime slurry shall be tested in accordance with California Test 109 and these special provisions. The proportioned lime and water shall be stored in a central mixing tank provided with agitation for both mixing and keeping the lime in suspension until applied to the aggregate. Agitation shall be continuous while the slurry is in storage and storage time shall not exceed 24 hours. Agitation shall be such that a build up of consolidated lime on the bottom or sides of the storage tank is prevented. The storage for lime slurry shall be equipped with a device for automatic and immediate lime slurry/aggregate proportioning cut-off when the level of slurry is lowered sufficiently to expose the pump suction line.

Lime slurry and aggregate proportioning shall be of the continuous type. Lime slurry shall be introduced into the mixer through a meter conforming to the requirements of Section 9-1.01, “Measurement of Quantities,” of the Standard Specifications. The meter shall be the mass flow, coriolis effect type. The system shall be capable of varying the rate of delivery of lime slurry proportionate with the delivery of aggregate.

The lime slurry meter shall function with such accuracy that, when operated at rates commensurate with aggregate delivery, the average difference between the indicated mass of material delivered and the actual mass delivered shall not exceed 0.5-percent of the actual mass for 3 runs of at least 3.75 tonnes. For any of 3 individual runs of at least 3.75 tonnes, the indicated mass of material delivered shall not vary from the actual mass delivered by more than one percent of the actual mass.

The aggregate shall be weighed using a belt scale. The belt scale shall be of such accuracy that, when the plant is operating between 30 percent and 100 percent of belt capacity, the average difference between the indicated mass of material delivered and the actual mass delivered shall not exceed one percent of the actual mass for 3 individual 3-minute runs. For any of the 3 individual 3-minute runs, the indicated mass of material delivered shall not vary from the actual mass delivered by more than 2 percent of the actual mass.

The actual mass of material delivered for proportioning device calibrations shall be determined by a vehicle scale conforming to the requirements of Section 9-1.01, “Measurement of Quantities,” of the Standard Specifications**,** with the exception of dry lime which shall be by a smaller scale as determined by these specifications. The vehicle scale shall be located at the plant and shall be error checked within 24 hours of checking the plant's proportioning devices. The meters and belt scales used for proportioning aggregates and lime slurry shall be equipped to facilitate accuracy checks. These accuracy checks shall be performed before production begins and at any other time as directed by the Engineer.

The belt scale for the aggregate and the lime slurry proportioning meter shall be interlocked so that the rates of feed of the aggregates and lime slurry are adjusted automatically (at all production rates and production rate changes. The plant shall not be operated unless this automatic system is operating and in good working condition.

The lime slurry meter and the aggregate feeder shall be equipped with devices by which the rate of feed can be determined while the plant is in full operation. Meters and belt scales used for proportioning aggregates and lime slurry shall be equipped with rate-of-flow indicators to show the rates of delivery of slurry and aggregate, and resettable totalizers so that the total amounts of slurry and aggregate introduced into the mixer can be determined. Rate-of-flow indicators and totalizers for like materials shall be accurate to within 0.5-percent when compared directly. The slurry totalizer shall not register when the lime slurry metering system is not delivering material to the mixer.

A monitoring device shall be located either in the stream of aggregate feed or where it will monitor movement of the belt by detecting revolutions of the tail pulley on the belt feeder. The device for monitoring no flow or belt movement, as the case may be, shall stop the lime slurry/aggregate proportioning automatically and immediately when there is no flow.

The rate of feed to the continuous mixer shall not exceed that which shall permit complete mixing of all of the material. Dead areas in the mixer, in which the material does not move or is not sufficiently agitated, shall be corrected by a reduction in the volume of material or by other adjustments. The mixer shall be equipped with paddles of a type and arrangement to provide sufficient mixing action and movement to the mixture. The mixer shall produce a homogeneous mixture of thoroughly and uniformly coated aggregates of unchanging appearance at discharge from the mixer.

After the lime has been added to the aggregate, the mixed material shall be placed in stockpiles and cured for not less than 24 hours but not more than 24 days before being incorporated into asphalt concrete. Lime treated aggregate stored in excess of 24 days shall not be used in the work.

The device which controls the proportioning of lime slurry to aggregate shall produce a log of production data. The production data shall be captured at 10 minute intervals throughout the period of daily production. This snapshot of production data shall be a register of production activity at that time and not a summation of the data over the preceding 10 minutes. The scope of material represented by the data snapshot shall be that material produced for 5 minutes either side of the collection point in time. The recorded production data shall be submitted to the Engineer, in electronic and printed media, at the end of each production shift, or as requested by the Engineer, and shall include the following:

Items representing live information captured by the proportioning controller or items calculated from live data captured by the proportioning controller;

a. the rate of flow of the slurry and the dry aggregate,
b. the actual ratio of dry lime to dry aggregate, as a percent of the dry aggregate,
c. the amount of deviation from the dry lime target ratio,
d. the date of the production,
e. the time of day,

Items representing manually input data;

f. the aggregate size being treated,
g. the input moisture content of the aggregate being treated,
h. the ratio of hydrated lime to water as proportioned at the time of the slurry production, and
i. the target dry lime to dry aggregate ratio.

The Contractor shall control the lime treatment operation. Should it become evident that the Contractor does not have control of the production process the lime treatment of asphalt concrete aggregates for the contract shall cease until such time as the problem is rectified. Evidence that the Contractor is not controlling the production shall include, but not be limited to, the following:

a. Data has not been submitted to the Engineer.
b. The collected data has not been complete, timely, or in the correct format.
c. The Contractor has not made corrective actions.
d. The corrective actions have not been successful, or timely.
e. The plant production has not been stopped when proportioning tolerances have been exceeded.
f. The functionality of any of the devices used for the production of lime treated asphalt concrete aggregates has failed during production.

The Contractor shall determine the moisture content of the aggregate at least once during each 2 hours of production and shall adjust the lime slurry to aggregate proportioning accordingly. Aggregate moisture content determinations by the Contractor shall be true representations of the amount of moisture in the aggregate being used for lime slurry treatment. The moisture content shall be calculated as a percent of the dry weight of the aggregate. The Engineer will use California Test 226 or 370 for the verification of moisture determinations.

Electronic media shall be presented in a tab delimited format on a 90 mm diskette with a capacity of at least 1.4 megabytes. Each captured interval of the continuous production data shall be LFCR (one line, separate record) with allowances for sufficient fields to satisfy the amount of data required by these specifications.

Collected data shall meet the following acceptance criterion:

a. When 3 consecutive sets of recorded production data (snapshots), collected in conformance with these specifications, indicates deviation beyond 0.3% above or below the exact target amount determined by the Contractor and approved by the Engineer, the Contractor shall cease production of lime treated aggregates.

b. When recorded production data indicates a deviation of greater than 0.5 above or below the exact target amount determined by the Contractor and approved by the Engineer the production of lime treated aggregates shall cease and the effected materials shall be rejected.

c. When 20% or more of the total daily production deviates beyond 0.3% above or below the exact target amount determined by the Contractor and approved by the engineer the total days production is rejected.

When production is stopped by these proportion control specifications the Contractor shall implement corrective measures and facilitate a 15 minute test run before preceding.

Lime treated aggregate shall be free of lime balls or clods.

Once aggregate has been treated with lime, aggregate shall not be retreated with lime.

The combined aggregate shall conform to quality requirements for California Test 217, Sand Equivalent, prior to the addition of lime and asphalt. The combined aggregate shall meet quality requirements for California Test 202, grading, after being subjected to lime treatment. When sampled for grading, the treated aggregate shall be sampled as required by Section 39-7.03A, "Proportioning for Batch Mixing," or Section 39-7.03B, "Proportioning for Continuous Mixing," of Section 11-1, "Asphalt Concrete," elsewhere in these special provisions.

Full compensation for lime treating aggregate shall be considered as included in the contract price paid per tonne for asphalt concrete or rubberized asphalt concrete of the type or types involved and no separate payment will be made therefor.